Department of Horticulture and Crop Science

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2014 Grape Winter Damage Survey Report

Imed Dami & Deborah Lewis

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COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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Dr. Deborah Lewis, Leader, Program Development & Evaluation, OSUE

Report Summary

GENERAL INFORMATION

- 62 grape producers in 35 counties among 89 respondents completed the survey
- Grape producer's average experience: 11.5 years (range: 0 to 60 years); most frequent response: 4 years
- Average coldest temperature recorded: -14 ^{o}F (range: -27 ^{o}F to -3 ^{o}F)
- Total acres reported: 838 acres (Wine: 720 acres; Juice: 117 acres; Table: 1 acre)

ECONOMIC LOSS

American Grape Varieties:

Varieties reported (top 5): Concord, Niagara, Catawba, Cynthiana/Norton, Delaware
Average estimated crop loss: 29%
Total estimated grape and wine value loss: $30,715
Average loss per acre: $155

Hybrid Grape Varieties:

Varieties reported (Top 6): Vidal Blanc, Chambourcin, Traminette, Seyval, DeChaunac, Frontenac
Average estimated crop loss: 57%
Total estimated grape and wine value loss: $737,599.50
Average loss per acre: $4,778

Vinifera Grape Varieties:

Varieties reported (Top 6): Riesling, Chardonnay, Cabernet Franc, Pinot Noir, Pinot Gris, Cabernet Sauvignon
Average estimated crop loss: 97%
Total estimated grape and wine value loss: $3,217,125
Average loss per acre: $13,176

EXTENSION & RESEARCH

- More than 70% reported interest in attending workshops during the growing season to discuss management decisions as a result of the freeze damage
- More than 80% reported support of research by the OSU Viticulture Program to address issues associated with cold damage to vines.

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Full Report

Following the extreme minimum lows experienced in January and February across Ohio, many vineyards were affected and vines sustained extensive bud damage and likely trunk damage depending on the location and the variety grown. The OSU Grape Team conducted a survey by sending a questionnaire on February 6, 2014, to grape and wine producers in Ohio. The purpose of the survey was to gather information on crop loss state-wide, develop research and outreach strategies to assist growers, and timely communication of objective data to state and federal agencies in case it is needed for assistance or disaster relief programs. This report is a compilation of the survey results. The OSU Grape Team is thankful to all who participated in this important endeavor. We hope you find the information useful.

GENERAL INFORMATION

1. Please select the Ohio County in which your vineyard is located.

Counties Reporting	Number of Individuals Reporting
Adams	1
Ashland	1
Ashtabula	11
Athens	1
Auglaize	1
Brown	3
Champaign	1
Clermont	2
Clinton	1
Columbiana	1
Coshocton	1
Cuyahoga	3
Delaware	2
Erie	2
Geauga	2
Greene	1
Hamilton	2
Harrison	1
Hocking	1

Counties Reporting	Number of Individuals Reporting
Holmes	2
Jackson	1
Jefferson	1
Knox	2
Lake	3
Lorain	1
Medina	1
Mercer	1
Noble	1
Portage	2
Stark	1
Summit	2
Tuscarawas	1
Wayne	3
Williams	1
Wyandot	1
Total Counties	**35**
Total Individuals	**62**

2. How many years have you been a grape producer?

Average number of years: 11.5
Maximum number of years: 60.0
Minimum number of years: 0.0
Most frequent response: 4.0

3. Please list the TOTAL NUMBER OF ACRES of each of the following types of grapes you own / manage.

Wine: 720 acres
Juice: 117 acres
Table: 1 acre
Total: 838 acres

4. Do you know the coldest temperature recorded in your vineyard so far this year?

Average coldest temperature recorded: -14 ^{o}F
Lowest minimum temperature reported: -27 ^{o}F
Highest minimum temperature reported: -3 ^{o}F

5. What was the source of the temperature recorded above?

Temperature logger in vineyard: 24 (or 57%)
Nearby weather station: 18

6. How far away was the weather station?

Average distance: 6.0 miles
Maximum distance: 30 miles
Minimum distance: 0.1 miles

ECONOMIC LOSS

7. How many times have you suffered economic loss as a result of cold injury in the last 10 years?

Average amount of times: 1.3
Maximum amount of times: 6
Minimum amount of times: 0

American Grape Varieties

8. Which of the following American grape varieties do you grow? Provide the following for each of the American variety of grapes you grow:

American grape variety (# of vineyards)	Number of acres grown	Average estimated % loss	Estimated grape value loss	Estimated wine value loss	Avg. estimated number of years to recover from loss
Catawba (5)	10.50	20.0 %	$ -	$ -	1.0
Concord (11)	162.60	28.6 %	$ 15,605.00	$ 11,000.00	1.8
Delaware (2)	3.50	40.0 %	$ 750.00	$ 1,000.00	2.0
Niagara (7)	16.25	62.0 %	$ 100.00	$ 1,010.00	1.5
Cynthiana (3)	4.35	11.7 %	$ -	$ -	0.0
Other** (4)	1.50	12.5 %	$ 250.00	$ 1,000.00	2.5
Total	**198.70**		**$ 16,705.00**	**$ 14,010.00**	
Average	**33.12**	**29.1 %**	**$ 2,784.17**	**$ 2,335.00**	**1.8**

** "Other" American varieties listed: Steuben (2), Edelweiss, and Rosette.

Hybrid Grape Varieties

9. Which of the following Hybrid grape varieties do you grow? Provide the following for each of the Hybrid variety of grapes you grow:

Hybrid grape variety (# of vineyards)	Number of acres grown	Average estimated % loss	Estimated grape value loss	Estimated wine value loss	Avg. estimated number of years to recover from loss
Cayuga White (5)	2.60	58.3 %	$ 750.00	$ 6,250.00	3.0
Chambourcin (18)	22.57	54.3 %	$ 9,615.50	$ 32,781.00	1.9
Chancellor (1)	0.00	0 %	$ -	$ -	0.0
Chardonel (6)	2.66	55.0 %	$ 4,500.00	$ 2,800.00	3.0
Corot Noir (3)	2.50	63.3 %	$ 1,750.00	$ 34,500.00	2.3
DeChaunac (5)	6.55	70.0 %	$ 1,375.00	$ 1,925.00	3.0
Foch (6)	4.69	41.5 %	$ 375.00	$ 1,925.00	3.5
Frontenac (8)	6.50	41.0 %	$ 7,000.00	$ 3,000.00	1.5
Frontenac Gris (2)	1.25	90.0 %	$ 1,000.00	$ 3,000.00	2.0
La Crescent (1)	1.00	0.0 %	$ -	$ -	0.0
Marquette (6)	4.50	21.3 %	$ 2,172.00	$ 6,219.00	4.0
Noiret (6)	3.20	58.0 %	$ 5,600.00	$ 50,500.00	2.3
Seyval (11)	9.49	40.7 %	$ 2,200.00	$ 2,000.00	1.4
Traminette (23)	18.84	57.6 %	$ 24,669.00	$ 65,263.00	2.6
Valvin Muscat (1)	1.00	100.0 %	$ 3,000.00	$ 33,000.00	3.0
Vidal Blanc (31)	56.44	63.3 %	$ 58,869.00	$ 216,207.00	2.6
Vignoles (2)	0.90	50.0 %	$ 1,500.00	$ 12,000.00	2.0
Other** (9)	9.70	47.4 %	$ 32,142.00	$ 109,712.00	2.6
Total	**154.39**		**$ 156,517.50**	**$ 581,082.00**	
Average	**8.13**	**57.0 %**	**$ 8,237.76**	**$ 30,583.26**	**2.5**

** “Other” Hybrid varieties listed: St. Pepin, St. Croix, Lacrosse, Landot Noir, Arandell, gr7, Noiret, Bianca, Landot 4511, Melon deBorgonea.

Vinifera Grape Varieties

10. Which of the following Vinifera grape varieties do you grow? Provide the following for each of the Vinifera variety of grapes you grow:

Vinifera grape variety (# of vineyards)	Number of acres grown	Average estimated % loss	Estimated grape value loss	Estimated wine value loss	Avg. estimated number of years to recover from loss
Auxerrois (2)	0.59	97.5 %	$ 2,350.00	$ 22,000.00	2.5
Cabernet Franc (29)	31.24	92.0 %	$ 109,150.00	$ 382,120.00	2.7
Cabernet Sauvignon (15)	17.95	96.5 %	$ 53,300.00	$ 195,000.00	2.7
Chardonnay (17)	38.64	97.9 %	$ 56,250.00	$ 372,948.00	2.7
Gewurztraminer (8)	8.65	99.4 %	$ 32,300.00	$ 109,800.00	2.3
Gruner Veltliner (2)	2.50	100.0 %	$ 12,500.00	$ 66,800.00	2.5
Lemberger (3)	1.34	98.3 %	$ 6,700.00	$ 45,000.00	2.5
Merlot (9)	6.85	100.0 %	$ 16,800.00	$ 106,400.00	2.5
Pinot Gris (14)	25.35	88.1 %	$ 50,350.00	$ 225,700.00	2.3
Pinot Noir (14)	30.15	90.5 %	$ 76,200.00	$ 349,700.00	2.6
Riesling (19)	61.84	90.5 %	$ 122,450.00	$ 534,600.00	2.3
Regent (2)	1.50	100.0 %	$ -	$ -	0.0
Syrah (5)	4.50	100.0 %	$ 14,500.00	$ 55,000.00	2.8
Viognier (1)	0.50	100.0 %	$ 2,907.00	$ -	1.0
Other** (8)	12.56	100.0 %	$ 30,900.00	$ 165,400.00	2.5
Total	**244.16**		**$ 586,657.00**	**$ 2,630,468.00**	
Average	**15.26**	**96.7 %**	**$ 36,666.06**	**$ 164,404.25**	**2.4**

** “Other” Vinifera varieties listed: Petit Manseng, Semillon, Malbec (2), Petit Verdot (3), Petite Syrah, Nebbiolo, Pinot Blanc, Rkatsitelli, Sauvignon Blanc, Tannat, Carmine, Bianca, Sangiovese, Dolcetto, and Dornfelder.

11. For each of the Vinifera varieties below, did you "hill-up" grafted vines last fall to protect from this year's freeze? Please indicate "yes", "no", "I didn't know it would help" for each variety.

Vinifera grape variety	I didn't know it would help	No	Yes	(blank)
Auxerrois	0 (0 %)	0 (0 %)	2 (100 %)	0 (0 %)
Cabernet Franc	1 (3.6 %)	11 (39.3 %)	16 (57.1 %)	0 (0 %)
Cabernet Sauvignon	0 (0 %)	4 (28.6 %)	8 (57.1 %)	2 (14.3 %)
Chardonnay	0 (0 %)	2 (12.5 %)	10 (62.5 %)	4 (25 %)
Gewurztraminer	0 (0 %)	2 (25 %)	6 (75 %)	0 (0 %)
Gruner Veltliner	0 (0 %)	0 (0 %)	2 (100 %)	0 (0 %)
Lemberger	0 (0 %)	1 (33.3 %)	2 (66.7 %)	0 (0 %)
Merlot	0 (0 %)	1 (12.5 %)	5 (62.5 %)	2 (25 %)
Pinot Gris	0 (0 %)	3 (23.1 %)	8 (61.5 %)	2 (15.4 %)
Pinot Noir	0 (0 %)	2 (15.4 %)	9 (69.2 %)	2 (15.4 %)
Riesling	0 (0 %)	2 (11.1 %)	12 (66.7 %)	4 (22.2 %)
Regent	0 (0 %)	0 (0 %)	1 (50 %)	1 (50 %)
Syrah	0 (0 %)	1 (25 %)	3 (75 %)	0 (0 %)
Viognier	0 (0 %)	1 (100.0 %)	0 (0 %)	0 (0 %)
Other	0 (0 %)	2 (25 %)	6 (75 %)	0 (0 %)
Total		**32 (26 %)**	**90 (74 %)**	**17**

<u>Table Grape Varieties</u>

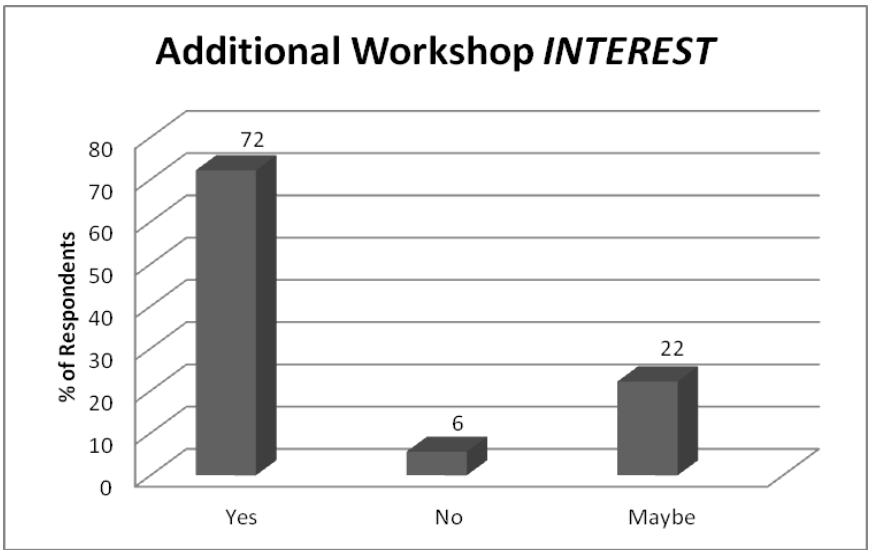
12. Which of the following Table grape varieties do you grow? Provide the following for each of the Table variety of grapes you grow:

Table grape variety (# of vineyards)	Number of acres grown	Average estimated % loss	Estimated grape value loss	Estimated wine value loss	Avg. estimated number of years to recover from loss
Canadice (1)	0.10	0.0 %	$ -	$ -	0
Einset (1)	0.10	0.0 %	$ -	$ -	0
Marquis (2)	0.10	0.0 %	$ -	$ -	0
Mars (1)	0.50	0.0 %	$ -	$ -	0
Reliance (2)	1.10	0.0 %	$ -	$ -	0
Vanessa (1)	0.10	0.0 %	$ -	$ -	0
Other** (2)	0.50	0.0 %	$ -	$ -	0
Total	**2.05**	**0.0 %**	**$ -**	**$ -**	
Average	**0.23**	**0.0 %**	**$ -**	**$ -**	**0**

** "Other" Table varieties listed: Concord.

EXTENSION/OUTREACH

13. Would you be interested in attending a workshop (or workshops) during the growing season to discuss management decisions (e.g. vine retraining, or grower round table) as a result of the Polar Vortex?



Make a comment on your choice here:

already did
I would like to attend if my work schedule permits.
management of grown gall is #1, then vine vigor, possibly a discussion on training to other systems since the time is ripe.
Management of vines after severe winter damage !!!
On the previous questions, I have not done bud viability counts yet. The winter is not over. Distance (from NH) makes the workshops difficult.
questions on fertilizing and the best methods to get into production
Seminars or field day would be extremely helpful, since we have never experienced conditions like this
We experienced minimal damage from a brief inspection of the vineyard. If any major damage occurred it would be in the seedless grapes as we plant mostly very hardy wine grape varieties. We will know more when we start pruning in March.
we have approx. 5 acres of vines planted and this will be our 3rd year. so we have a lot to learn
Would be very interested in knowing what affect this will have on our plants and if there are any preventative measures that can be applied.
Would like to get training and information for field grafting. Would like to find contractors/suppliers who could supply scion wood and perform the grafting
Yes if it would be in mid season.

14. What topics would you like to see addressed in future workshops? Please choose all that apply:

Workshop Topics *	# of Respondents	% of the 92 Respondents (who completed survey)
Managing damaged vines	40	43.5 %
Assessing cordon and trunk damage	38	41.3 %
Retraining	32	34.8 %
Crown gall management	31	33.7 %
Replanting decisions	30	32.6 %
Sucker management	30	32.6 %
Cropping	21	22.8 %
Canopy management	20	21.7 %
Pest management	17	18.5 %
Other **	8	8.7 %

* Placed in order from highest to lowest %.

** "Other" topics specified by survey respondents: mildew, recovery methods, winter cover use, field grafting, trunk protection (other than hilling), economics of injury recovery, genetically-engineered polar vortex resistant vinifera.

15. Do you have the Extension bulletin titled "Winter Injury to Grapevines and Protection Methods", MSU E2930 (online order: http://emdc.msue.msu.edu)?

Response	# of Respondents	% of Respondents
Yes	31	34.1 %
No	26	28.6 %
No answer	34	37.4 %
TOTAL	**91**	**100.0%**

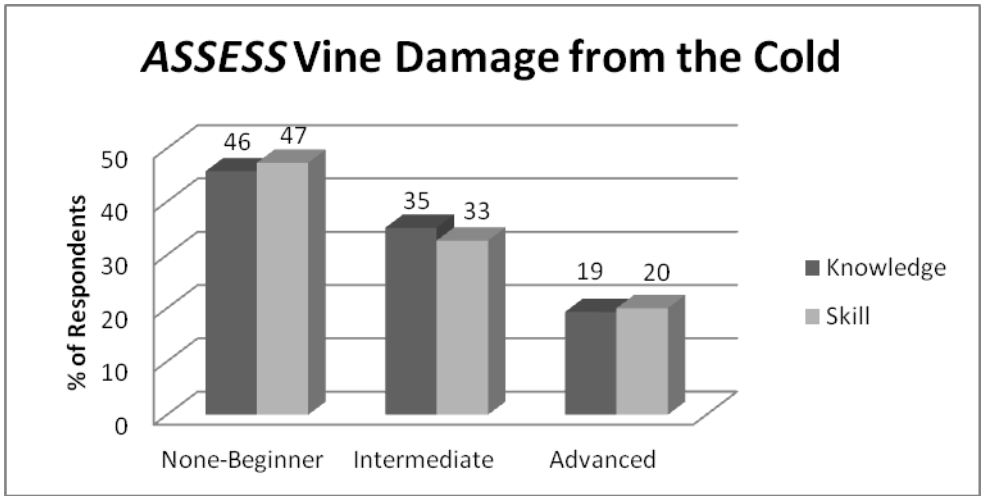
16. Select Extension resources you would like to see available on the topic of freeze damage and crop protection. (Select all that apply)

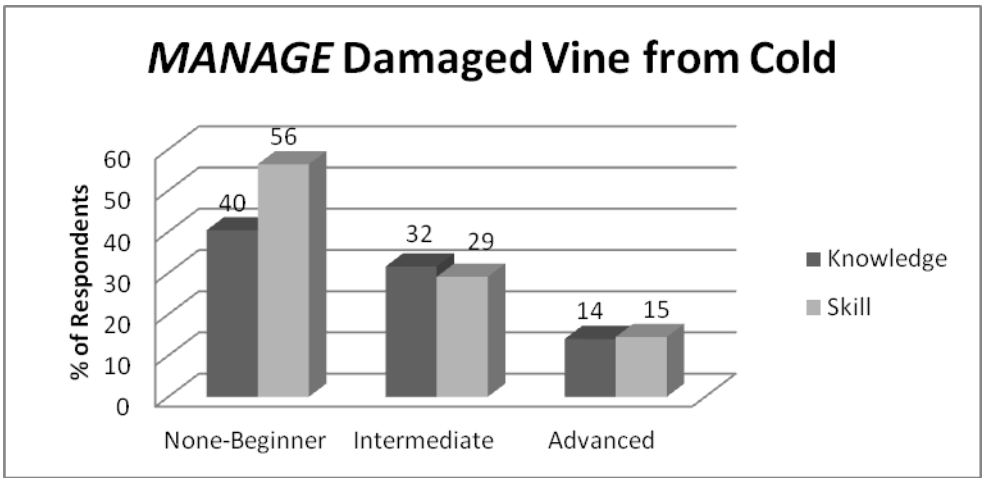
Extension Resources *	# of Respondents	% of the 92 Respondents (who completed survey)
Extension Bulletins	30	32.6 %
Information on Ohio State's Grape Website	28	30.4 %
OSU Extension Factsheets	26	28.3 %
Video Clips (e.g. on YouTube)	26	28.3 %
Online Resources	20	21.7 %

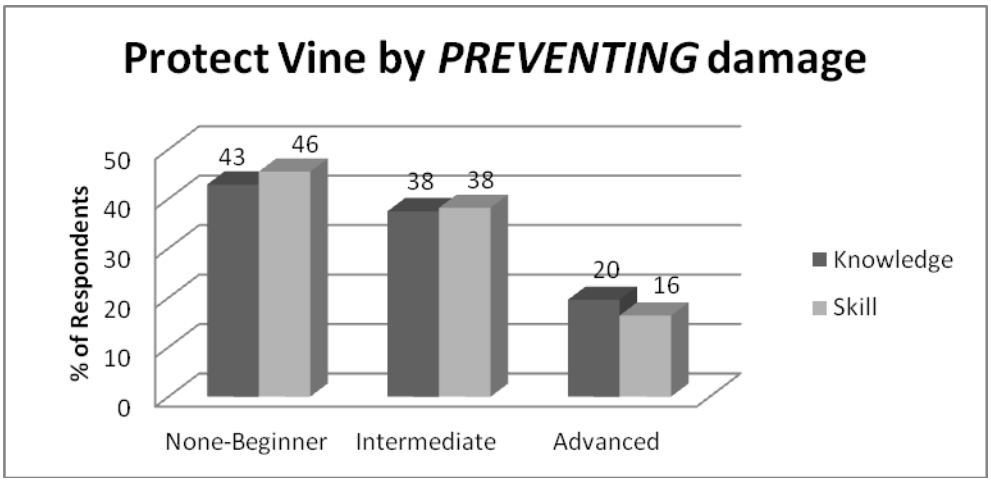
* Placed in order from highest to lowest %.

KNOWLEDGE & SKILL

17. For the following items, please rate your knowledge of the item and your skill in that area using the following scale: Beginner, Intermediate, Advanced. Select "None" if you have no knowledge / skills in that area (92 respondents).



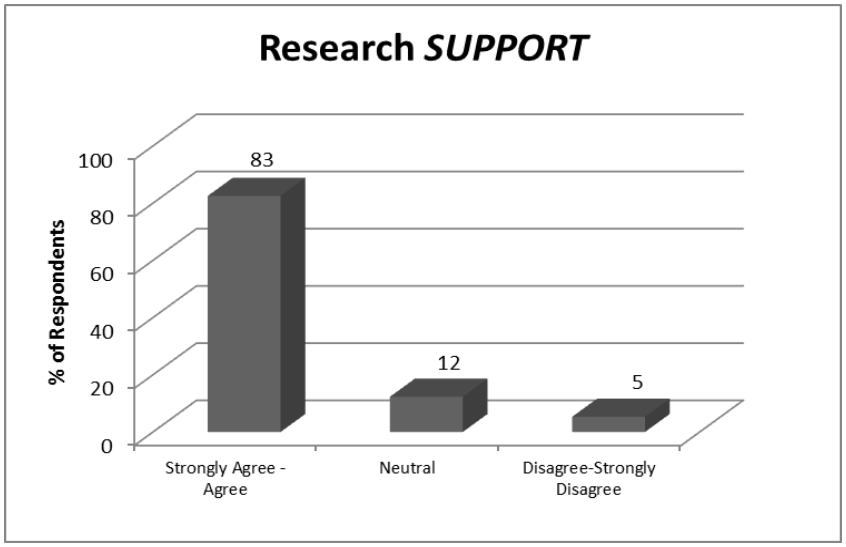




RESEARCH

18. There is little or no research / information available on many of the specific issues associated with managing damaged vines. Since these events only happen once in a decade or so, it is important to find answers through research when an event like the 'Polar Vortex' occurs. Providing research-based information to growers allows them to be better equipped and ready for future events.
Rate you level of agreement with the statement below, where 5 = strongly agree to 1 = strongly disagree.

Statement: I support research done by Ohio State to address issues associated with cold damage to vines.



19. What questions should research address in response to this freeze? (Select all that apply)

Research Topics *	# of Respondents	% of the 92 Respondents (who completed survey)
Pruning (type, timing, severity decisions after injury	49	53.3 %
Vine retraining after injury	41	44.6 %
Trunk and cordon management	40	43.5 %
Sucker management	32	34.8 %
Economics and risk management of crop damage and loss	31	33.7 %
Fruit and wine quality from damaged vines	30	32.6 %

* Placed in order from highest to lowest %.